CLAIMS

1. A superconductive composite tape (1), comprising a substrate (2) and a layer (5) made of superconductive material, and characterized in that said superconductive material layer (5) comprises a plurality of superconductive filaments (11), which are substantially parallel to one another and to a longitudinal axis (A) of the tape and are spaced out from one another.

2. The tape according to Claim 1, characterized in that the filaments (11) are separated from one another by grooves (14) formed through said superconductive material layer (5) throughout the whole thickness of said superconductive material layer (5).

3. The tape according to Claim 2, characterized in that the grooves (14) are interrupted by transverse bridges (17) for connection between adjacent filaments (11).

4. The tape according to Claim 2 or Claim 3, characterized in that the grooves (14) extend in depth up to the substrate (2).

5. The tape according to any one of Claims 2 to 4, characterized in that it comprises at least one buffer layer (4), interposed between the substrate (2) and the superconductive material layer (5), the grooves (14) extending through the superconductive material layer (5) and through the buffer layer (4) up to the substrate (2).

6. The tape according to any one of Claims 2 to 5, characterized in that it comprises a coating (30) made of a coating material, the filaments (11) being embedded in the coating (30).

7. The tape according to Claim 6, characterized in that the coating material is a metal material.

8. The tape according to Claim 6 or Claim 7, characterized in that the coating (30) fills the grooves (14) and coats the filaments (11).

9. The tape according to any one of the preceding claims, characterized in that each filament (11) is delimited by a pair of side walls (15) provided with resistive barriers (25).

10. The tape according to Claim 9, characterized in that the resistive barriers (25) are defined by respective portions (26) of the side walls (15) in which the superconductive material has a structure modified with respect to the body of the superconductive material layer (5).

11. The tape according to any one of the preceding claims, characterized in that it is wound on itself around said axis (A) to form a thread (33) in which said filaments (11) are substantially parallel to said axis (A).

12. The tape according to any one of the preceding claims, characterized in that it is twisted on itself along said axis (A) to form a tress-like thread (33), in which the filaments (11) are substantially spirally wound with respect to one another.

13. The tape according to any one of the preceding claims, characterized in that the filaments (11) are connected to one another by transverse bridges (17) made of superconductive material.

14. A method of fabrication of superconductive composite tapes, comprising a step of providing a superconductive

composite tape (1) having a superconductive material layer (5) positioned on a substrate (2), and characterized by comprising the step of forming in the superconductive material layer (5) a plurality of superconductive filaments (11), which are substantially parallel to one another and to a longitudinal axis (A) of the tape and are spaced out from one another.

15.The method according to Claim 14, characterized in that it comprises an etching step, in which a plurality of grooves (14) is dug through the superconductive material layer (5) throughout the whole thickness of said superconductive material layer (5) in order to delimit the filaments (11).

16.The method according to Claim 15, characterized in that, in the etching step, the grooves (14) are dug in discontinuous stretches, in such a way that each groove (14) is interrupted by transverse bridges (17) connecting adjacent filaments.

17.The method according to Claim 15 or Claim 16, characterized in that, in the etching step, the tape (1) is dug up to the substrate (2).

18.The method according to any one of Claims 15 to 17, characterized in that the tape (1) comprises at least one buffer layer (4) set between the substrate (2) and the superconductive material layer (5), and the etching step is carried out through the superconductive material layer (5) and through the buffer layer (4) up to the substrate (2).

19.The method according to any one of Claims 15 to 18, characterized in that it comprises a coating step, in which said filaments (11) are embedded in a coating material that forms a coating (30) of the tape (1).

20.The method according to Claim 19, characterized in that the coating material is a metal material.

21.The method according to Claim 15 or Claim 16, characterized in that, in said coating step, the coating material fills said grooves (14) and coats said filaments (11).

22.The method according to any one of Claims 15 to 21, characterized in that it comprises a step of providing the side walls (15) of the filaments (11) with resistive barriers (25).

23.The method according to the preceding claim, characterized in that said resistive barriers (25) are formed in the etching step, by modifying the structure of the superconductive material of said side walls (15).

24.The method according to any one of Claims 15 to 23, characterized in that it comprises a step of winding the tape (1) on itself about said axis (A) to form a thread (33) in which the filaments (11) are substantially parallel to said axis (A).

25.The method according to any one of Claims 15 to 24, characterized in that it comprises a step of twisting the tape (1) on itself along said axis (A) to form a tress-like thread (33) in which said filaments (11) are substantially spirally wound with respect to one another.

26.The method according to any one of Claims 15 to 25, characterized in that it comprises a step of connecting the filaments (11) to one another via transverse bridges (17) made of superconductive material.